

*HEDEOMA MATOMIANUM* (LABIATAE), A NEW SPECIES FROM  
BAJA CALIFORNIA, MEXICO

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ABSTRACT

*Hedeoma matomianum* grows at 1400 m on Cerro Matomí, just south of the Sierra San Pedro Mártir. Two other species also grow in Baja California, both endemic: *H. tenuiflorum* Brandege in the Sierra San Borja and *H. martirensis* Moran in the high Sierra San Pedro Mártir. *Hedeoma matomianum* differs from both in its bushier habit and more compact inflorescence and in its shorter corolla (9–12 mm vs. 17–18 and 19–25 mm). Wiggins' Flora of Baja California (1980) lists only the *Hedeoma* of the Sierra San Borja; but it is misnamed as *H. nanum* Briq. subsp. *californicum* W. S. Stewart, which is not known in Baja California. That plant resembles *H. matomianum* in habit but differs in its less compact inflorescence and its smaller calyx and its shorter corolla (8–9 vs. 9–12 mm).

RESUMEN

*Hedeoma matomianum* crece a 1400 m en el Cerro Matomí, inmediatamente al sur de la Sierra de San Pedro Mártir. Otras dos especies, ambas endémicas, crecen también en Baja California: *H. tenuiflorum* Brandege en la Sierra de San Borja y *H. martirensis* Moran en la Sierra de San Pedro Mártir. *Hedeoma matomianum* difiere de ambas en su hábito más arbustivo, su inflorescencia más compacta, y su corola más corta (9–12 mm vs. 17–18 y 19–25 mm). La Flora de Baja California de Wiggins (1980) lista sólo la especie de *Hedeoma* de la Sierra de San Borja, pero la nombra incorrectamente como *H. nanum* Briq. subsp. *californicum* W. S. Stewart, la cual no es conocida en Baja California. Esta última planta (*H. nanum* subsp. *californicum*) se parece a *H. matomianum* en hábito, pero difiere en su inflorescencia menos compacta, cáliz más pequeño, y corola más corta (8–9 mm vs. 9–12 mm).

Cerro Matomí is a sharp 1643 m peak on the peninsular divide a quarter of the way down the peninsula of Baja California. It is some 30 km south of the Sierra San Pedro Mártir, far the highest range on the peninsula, a massif 70 km long and over 1800 m high, with one peak of 3095 m. Upper parts of the Sierra are a climatic island largely covered with coniferous forest, with no counterpart elsewhere in Baja California and none in any direction closer than the Santa Rosa Mountains of Southern California, some 250 km to the north.

Cerro Matomí is a lesser outpost of the Sierra, with *Pinus monophylla* Torrey & Frémont, *Juniperus californica* Carrière, and other northern plants, and with a dense growth of *Adenostoma fasciculatum* Hook. & Arn. (chamise) on the mesa just to the northeast. Some 15 flowering plants seem to reach their southern known limits at the peak (Moran 1983). Tinajas de Moraga, a series of tanks or pools in the bedrock of the arroyo bed at the SE base of the peak, is the northernmost known station for *Haplopappus odontolepis* Moran and the only known peninsular locality for *Purshia mexicana* (D. Don) Welsh var. *stansburyana* (Torrey) Welsh.

The peak is prominent on the skyline about 40 km NE from the main peninsular highway but is isolated from roads. I went there 2–5 May 1973, camping at Tinajas de Moraga (1150 m), about 6 hours on a slow mule from my starting point at Rancho el Metate. Apparently no other botanist has been there. In 1902 while collecting mammals (El-

liott 1903) and some plants, Edmund Heller camped 12–30 June in Arroyo Matomí, just east of and below the peak; but his journal (Heller 1902) does not mention the peak.

On the rather bare gentler east slope below the steep rocky peak, I found a large stand (perhaps several hundred plants) of the unknown *Hedeoma* named here:

*Hedeoma matomianum* Moran, sp. nov. (Fig. 1) —  
TYPE: MEXICO, BAJA CALIFORNIA, Cerro Matomí, common at 1375 m on rather bare rocky east slope, near 30°22½'N, 115°07'W, 4 May 1973, Reid Moran 20810 (holotype SD 88934; isotypes CAS and to go: BCMEX, BM, ENCB, F, GH, ICF, K, MEXU, MICH, MO, NY, RSA, US).

Planta perennis dense ramosa 1–2 dm alta, ramis dense hispidulis. Foliorum laminae ellipticae subacutae 5–8 × 2–5 mm, marginibus subintegris. Cyclum 1–3-floratae. Calyx 5–8 mm longus, tubo 4–5 mm longo, labio superiore ±2 mm longo valide sursum curvato intus pubescenti, segmentis triangulo-attenuatis ciliatis basi 0.8 mm latis, segmentis inferioribus 1.5–2.5 mm longis basi 0.5 mm latis. Corolla purpurea lavandulave tubulo-funnelforma 9–12 × 4–5 mm, tubo ±5–6 mm longo basi 0.5 mm crasso, fauce ±1–2 mm longa, labio superiore arcuato subgaleato ±2–2.5 mm longo, labio inferiore 3–4 mm longo. Stamina subexserta, filamentis 2.5–3 mm longis, fauce 6 mm supra corollae basin

insertis. Ab *H. tenuifloro* Brandegee et *H. martirensis* m. habitu fruticosiore inflorescentiaque compactiore et corolla brevior (9–12 mm vs. 17–18 et 19–25 mm) differt.

Densely branched perennial 1–2 dm high and to 3 dm wide, from a basal stem to 1 cm thick, the herbage with little odor. Stems of the season whitish, 5–15 cm tall,  $\pm 1$  mm thick, little branched above base of new growth, densely hispidulous with downcurved trichomes to 0.1 mm long on lower stem and to 0.3 mm long on uppermost stem, the internodes mostly 5–15 mm long. Leaf blades thick, elliptic, subacute, 5–8 mm long, 2–5 mm wide, entire to faintly few-crenate or less often 1- or 2-toothed, hispidulous on both sides, glandular dorsally, with 2–3 pairs of strongly ascending veins slightly raised on dorsal surface and with margins slightly revolute-thickened, narrowed to petiole 1–4 mm long. Flowers at  $\pm 5$ –15 nodes in upper 5–10 cm of stem, in cymules mostly of 3 flowers, or upper flowers solitary; peduncles to 2 mm long and

pedicels 1–4 mm long, the bracteoles acerose, 2–3 mm long. Calyx purplish, 5–8 mm long,  $\pm 1$  mm thick, hispidulous below and with gradually shorter trichomes upward, the tube 4–5 mm long, somewhat sigmoid, with dense white annulus 0.8 mm high included at throat, the upper lip broad,  $\pm 2$  mm long, strongly upcurved, pubescent within, divided nearly to middle into triangular-attenuate ciliate segments 0.8 mm wide at base, the lower two segments slightly upcurved, slender, attenuate, ciliate, 1.5–2.5 mm long, 0.5 mm wide at base. Corolla purple or lavender, tubular-funnelform, exserted 4–5 mm from calyx, 9–12 mm long, 4–5 mm wide, puberulent outside, the tube  $\pm 5$ –6 mm long,  $\pm 0.5$  mm thick at base and 0.8 mm above, the throat  $\pm 1$ –2 mm long, the upper lip arched, subgaleate,  $\pm 2$ –2.5 mm long, the lower lip 3–4 mm long, the lateral lobes slightly spreading, rounded,  $\pm 1$  mm long and wide, the midlobe downcurved, retuse,  $\pm 1.5$  mm long and 2 mm wide, puberulent along mid-line, with four  $\pm$  parallel regular or irregular longitudinal stripes in throat and white between. Stamens slightly exserted, the filaments 2.5–3 mm long, inserted in throat  $\pm 6$  mm from corolla base, the anther cells divaricate,  $\pm 0.6$  mm long. Styles  $\pm 9$  mm long. Nutlets unseen. Chromosomes: none noted. Flowering April and May.

**Distribution.** Known only from the type locality and vicinity; paratype from east slope of Cerro Matomí at 1425 m, **Moran 20794** (HCIB, SD, UC).

In Irving's (1980) revision of *Hedeoma*, the new species falls in *Hedeoma* subgenus *Saturejoides* Irving and section *Saturejoides* but does not agree with any of the species as described. Two other species grow in Baja California (Fig. 1), each known only in one mountain range: *H. tenuiflorum* Brandegee high in the Sierra San Borja, some 250 km to the SSE, and *H. martirensis* Moran in the high Sierra San Pedro Mártir, some 80 km to the NNW. Irving placed these two together in his Wagner tree (1980, Fig. 1) and in his key; he called *H. martirensis* "somewhat enigmatic, . . . [i]n many of its morphic features . . . show[ing] strong phenetic affinities" to *H. diffusum* E. Greene of northern Arizona, but in the rest of its characters "most closely related to *H. tenuiflorum*".

*Hedeoma tenuiflorum* is rare and little-known: Epling and Stewart (1939) and Irving (1980) cited only Brandegee's type collection of 1889 (holotype UC 122496!; isotypes PH, UC, US). This is from Rancho Viejo, which to judge from Brandegee's (1889) account and map, is near 28°28'N, 113°35'W, in the Sierra San Borja. Leaves of *Quercus turbinella* E. Greene (det. by Dennis Breedlove) with the holotype suggest that it probably grew at an elevation of 1200 m or more. Two later collections from the same sierra are essentially sterile, having only a few weathered old calyces; but they compare well with the holotype. These are: (1) **Moran 11504** (DS, SD) from north slope of red

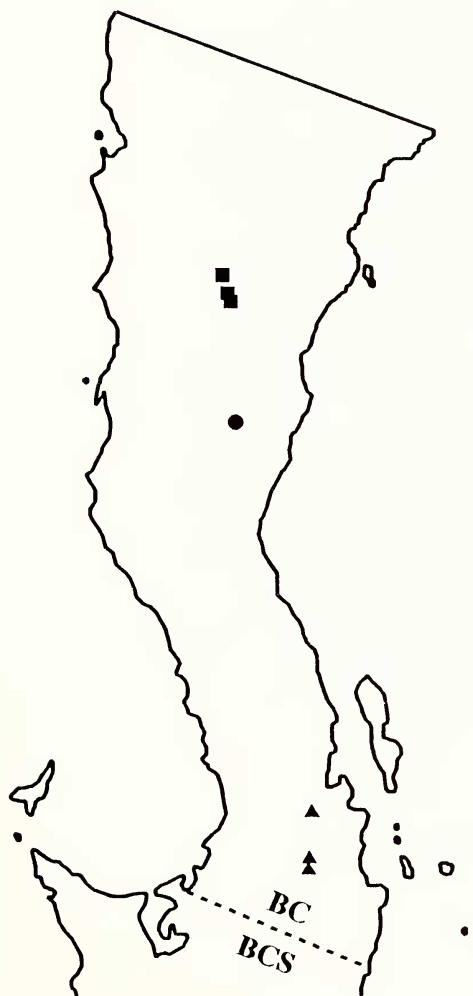


FIG. 1. Distribution of *Hedeoma* in Baja California.

peak, Cerro el Sauco, 1450 m, 17 January 1964 [clump 2 dm high and wide; little odor]; and (2) Moran 12806 (DS, SD, UC) from north slope near summit of Cerro la Chona, 1400 m, 19 March 1966.

*Hedeoma martirens* is locally common at 2300–2800 m near the crest of the north-central San Pedro Mártir, best developed in pine-fir forest on the upper east slope. Irving called it “unique” in the genus for the high insertion of the stamens—“just below the juncture of the upper and lower corolla lips”. For the genus otherwise, he said the stamens arose from the middle of the corolla; but a quick check shows that this is not always true. In fact, the stamens are inserted in the throat also at least in *H. nanum* and in *H. tenuiflorum*; so other species need to be checked.

In *H. matomianum* the stamens again are inserted in the throat, as in the two other Baja Californian species. Despite the differences shown below and despite the lack of information about stamen insertion in other species, this fact at least suggests that these three may be closely related. Differences among the three Baja Californian species are shown in the following key.

- 1. Stems decumbent, rooting at nodes; cymules 1-flowered, at 1–4 nodes; corolla 19–25 mm long; upper calyx lobes united ca. ½; leaf-blades glabrous or sparsely scabrous ventrally . . . . . *H. martirens*
- 1' Stems erect, not rooting; cymules mostly 1–3-flowered, at 5–15 nodes; corolla 9–18 mm long; upper calyx lobes united ca. ½; leaf blades hispidulous ventrally.
- 2. Corolla slender, 17–18 mm long; stems 15–60 cm tall, the internodes 2–6 cm long; cymules at 5–10 nodes in upper 15–40 cm; calyx 8–9 mm long . . . . . *H. tenuiflorum*
- 2' Corolla funnellform, 9–12 mm long; stems 10–20 cm tall, the internodes 5–15 mm long; cymules at 5–15 nodes in upper 5–10 cm; calyx 5–8 mm long . . . . . *H. matomianum*

R. S. Irving in 1968 annotated my SD specimens of both Sierra San Borja collections (11504, 12806) as *H. tenuiflorum* Brandegee, as they had been tentatively identified. However, in the same year he annotated the sterile DS specimen of my 11504 as *H. nanum* Briq. “var.” *californicum* W. S. Stewart. That is a very different species, for which there seems to be no authentic Baja Californian record: at least Epling and Stewart (1939) and Irving (1980) cited none! Then under *Hedeoma* Wiggins (1980) showed only *H. nanum* Briq. subsp. *californicum* W. S. Stewart, “on N-facing slopes in Sierra San Borja . . .” He evidently based this report on the DS specimen of 11504, *H. tenuiflorum*, misidentified by Irving—though Wiggins’ figure 386, drawn by Jeanne R. Janish for an earlier work

(Abrams 1951, fig. 4421) doubtless is correct for subsp. *californicum*.

Although the only *Hedeoma* in Wiggins’ Flora is wrongly named, *H. matomianum*, strangely enough, looks fairly similar to the one subspecies Wiggins did list. *Hedeoma nanum* Briq. is a variable annual or perennial of SE California to Nevada and Texas and southward in Mexico to San Luis Potosí. Stewart (in Epling and Stewart 1939) divided it into 4 subspecies and Irving (1980) into 3 varieties. *Hedeoma nanum* subsp. *californicum* Stewart grows in southernmost Nevada and in adjacent California and Arizona. The new species is similar in habit but differs in its more pubescent stems, its more compact inflorescence, with 1–3-flowered cymules, its longer calyx (tube 4–5 vs. 3–4 mm), with slightly longer and wider teeth, and notably its longer corolla (9–12 vs. 8–9 mm).

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